UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,997	02/05/2004	Kjell Malmlof	5904.214-US	5384

23650 7590 06/18/2007

NOVO NORDISK, INC.
PATENT DEPARTMENT
100 COLLEGE ROAD WEST
PRINCETON, NJ 08540

EXAMINER	
AUDET, MAURY A	
ART UNIT	**PAPER NUMBER**
1654	

NOTIFICATION DATE	DELIVERY MODE
06/18/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

nnipatent@novonordisk.com

Office Action Summary	Application No.	Applicant(s)	
	10/772,997	MALMLOF ET AL.	
	Examiner	Art Unit	
	Maury Audet	1654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,6 and 21-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6 and 21-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 March 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 10/140,512.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's amendment and response of 3/15/07 is acknowledged. Claims 1-3, 6, and new claims 21-27 are pending and examined on the merits. Two specific new claims are addressed (new claims 23-27 are simply to known HGH variants). New claim 21 is drawn to a limitation which is contrary to accepted the medically accepted definition of obesity (BMI greater than 25 is overweight; BMI greater than 30 is obese). New claim 22 is drawn merely to known ranges of HGH administration; for anything (about 0.01 mg/kg to about 1.0 mg.kg), as described in the specification and in Applicant arguments (page 7/13). This amount has not been tested in the present application (as rats were the test subject).

Claim Rejections - 35 USC § 112 2nd

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term "BMI of greater than 25" in claim 21 is used by the claim to mean "obesity (the antecedent basis provided in claim 1)", while the accepted meaning is "overweight." The term is indefinite because the specification does not clearly redefine the term. See the CDC definition that "According to the BMI weight status categories, anyone with a BMI over 25 would be classified

as overweight and anyone with a BMI over 30 would be classified as obese" (CDC; http://www.cdc.gov/nccdphp/dnpa/bmi/adult_BMI/about_adult_BMI.htm#Athlete).

Claim Rejections - 35 USC § 112 1st

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3, 6, and 21-27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

This is a new matter rejection. The added material which is not supported by the original disclosure is as follows: "the patient is on an unrestricted diet during the treatment". Namely, the term "unrestricted" or limitations thereto were not found in a KWIC search of the published application.

Applicant is required to cancel the new matter, or amend commensurate with the language applied in the description, in the reply to this Office Action.

Specification

The amendment filed 3/15/07 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new

matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: "the patient is on an unrestricted diet during the treatment". Namely, the term "unrestricted" or limitations thereto were not found in a KWIC search of the published application.

Applicant is required to cancel the new matter, or amend commensurate with the language applied in the description, in the reply to this Office Action.

Claim Rejections - 35 U.S.C. § 112 1st Scope of Enablement

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The rejection of claims 1-6, 8-11, 14, and 19-20 under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for (unclaimed) a method for treatment of obesity using growth hormone (GH) (known in the art though, see e.g. US 4,863,901, entire document); does not reasonably provide enablement for a method for "suppressing appetite in a mature human patient comprising GH by injection", is maintained for the reasons of record. Applicant's arguments and Declaration have been considered but are not found persuasive. Namely, the Examiner is not convinced that one of ordinary skill in the art could pick up the application and simply administer any "effective" amount (whatever this is) of HGH to an obese human, with confidence and expectation that obese human to now feel satiety or closer to satiety, such that he/she craves food less. New claim 22 is drawn merely to known ranges of HGH administration; for anything (about 0.01 mg/kg to about 1.0 mg/kg), as described in the specification and in Applicant arguments (page 7/13). Presently, it is deemed that undue experimentation exists, as

the skilled artisan wishing to use the invention would have to in fact carry out the invention to see is 1) it does work (HGH suppress appetite in obese humans), and

2) what amount will actually work to suppress appetite in obese humans.

It is not the Examiner's duty to suggest Applicant's means of testing; however, questioning is the validity of testing/results as relates to the subject matter of the invention is. HGH is an accepted pharmaceutical, used routinely in our society. The Examiner questions why and is curious why a simple test was not set up in obese clients either receiving or set to receive HGH therapy, alongside:

1) a random quantitative survey of food intake (preferably before and after start of HGH); and a

2) qualitative survey to gain the subjective/mental perception of those under the study regarding their hunger.

It seems one or both of the surveys/studies above would satisfy the enablement issue as to the present application.

Thus, in light of previous studies, as the Examiner cited, leaving doubt that HGH actually *increases* feeding in rats (contrary to the Applicant's assertions/study on rats); the enablement rejection over the claims is maintained.

The rejection is repeated for continuity of record:

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims.

> The first paragraph of 35 U.S.C. 112 states, "The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same...". The courts have interpreted this to mean that the specification must enable one skilled in the art to make and use the invention without undue experimentation. The courts have further interpreted undue experimentation as requiring "ingenuity beyond that to be

expected of one of ordinary skill in the art" (Fields v. Conover, 170 USPQ 276 (CCPA 1971)) or requiring an extended period of experimentation in the absence of sufficient direction or guidance (In re Colianni, 195 USPQ 150 (CCPA 1977)). Additionally, the courts have determined that "... where a statement is, on its face, contrary to generally accepted scientific principles", a rejection for failure to teach how to make and/or use is proper (In re Marzocchi, 169 USPQ 367 (CCPA 1971). Factors to be considered in determining whether a disclosure meets the enablement requirement of 35 U.S.C. 112, first paragraph, have been described in In re Colianni, 195 USPQ 150, 153 (CCPA 1977), have been clarified by the Board of Patent Appeals and Interferences in Ex parte Forman, 230 USPQ 546 (BPAI 1986), and are summarized in In re Wands (858 F2d 731, 737, 8 USPQ2d 1400, 1404 (Fed Cir. 1988). Among the factors are the nature of the invention, the state of the prior art, the predictability or lack thereof in the art, the amount of direction or guidance present, the presence or absence of working examples, the breadth of the claims, and the quantity of experimentation needed.

The instant disclosure fails to meet the enablement requirement for a method for "suppressing appetite in a mature human patient comprising GH by injection" for the following reasons:

The nature of the invention: The claimed invention is discussed above.

The state of the prior art and the predictability or lack thereof in the art:

In a literature review of the appetite effect of GH on various species, the conclusions are inconclusive (Wang et al., J. of Endrocrinology, 2000, 166, 621-630). "*Among the many responses to GH administration is suppression of voluntary feed intake (FI) in some species . . .*" (abstract). "*Numerous investigators have demonstrated that GH alters voluntary feed intake (FI), but there are marked species differences (first para.).*

For instance, [contrary to Applicants studies on rats,] GH has been shown to *increase appetite* in *rats* (Azain et al., 1995, cited therein).

While, GH has been show to have a *suppress appetite* in:
1. broiler chickens;
2. pigs (Klindt et al., 1998); and
3. anorexic/bulimic patients during the binge-eating cycle of elevated food consumption (Vaccarino et al., 1994; although abstract of article appeared to indicate that growth hormone releasing factor (GRF) increased appetite in anorexic patients, and assumedly increased GH therewith).

Thus, absent specific species testing, and possibly other factors, there does not appear to be a clear animal model for human testing, other than conducting tests directly on humans (which has been done in at least one subpopulation (anorexic/bulimic patients) with mixed results (see above).

The amount of direction or guidance present and the presence or absence of working examples: Enablement must be provided by the specification unless it is well known in the art. *In re Buchner* 18 USPQ 2d 1331 (Fed. Cir. 1991). The specification clearly describes that GH is useful for the known use of treating obesity. However, in terms of the claimed invention (discussed above and only drawn to human treatment), the specification only describes mixed results of GH on appetite suppression (without any reference to sources, but indicating the same findings discussed above under 'prior art', which does cite reference sources) (see specification page 2, lines 18-26). Furthermore, Applicant has only tested GH for suppressing/increasing appetite/food intake, as to obese rats (see Fig. 1, parent application), with no clear indication of what amount constitutes the "appetite suppression effective amount" even in normal rats versus obese rats, or what such amount would be necessary in normal versus obese humans. [Note: As GH has been tested routinely on humans in the past, it is unclear to the Examiner, with the prior art teachings as to mixed results/unpredictability of GH on appetite/food intake amongst various species and even within species themselves (see Applicant's specification page 2 description), why Applicant himself did not once again test GH in the human species (or subpopulations therein, e.g. obese humans) to which all the claims are directed; as other researchers have conducted GH studies on the species of interest? Should Applicant have later done this, it is suggested that such data be presented in the form of an Affidavit/Declaration if deemed useful to the enablement of the presently claimed invention.]

The breadth of the claims and the quantity of experimentation needed: The claims are drawn broadly to a method for "suppressing appetite in a mature human patient comprising GH by injection". Absent sufficient teachings in the specification or art sufficient to overcome the

teachings of unpredictability in the art as to enablement on whether GH can suppress appetite in any human species or subpopulation therein; it would require undue experimentation by one of skill in the art to be able to practice the invention commensurate in scope with the claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maury Audet whose telephone number is 571-272-0960. The examiner can normally be reached on M-Th. 7AM-5:30PM (10 Hrs.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cecilia Tsang can be reached on 571-272-0562. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MA, 07/09/2007

CHRISTOPHER R. TATE
PRIMARY EXAMINER